

# IT GOVERNANCE FOR SMES: A MULTIPLE CASE STUDY

## Abstract

*IT Governance is placing IT on the agenda of boards and CEOs. Research on the IT value proposition is broad and elaborate but mostly focussed on large enterprises. Despite the numerous successes illustrating the advantages of bringing IT/IS into organizations it is broadly accepted that the processes of designing, developing, implementing and using IS are cumbersome and not straightforward. Recent and older reports show that IS projects frequently fail. The focus of our research is the relation of IT and SMEs (Small and Medium-sized Enterprises) in an outsourced environment. We have chosen for a qualitative and positivistic IS case study research strategy based on multiple cases. Considering the current state of the research we have formulated two general research objectives: 1) to extend our knowledge of IS failures in an outsourced SME environment and 2) to clarify the link between the insights of failed IS projects and the principles of IT governance. The research was started in 2006 with the development of the case study database and an extensive literature study. We intend to finish our work by the end of 2008.*

*Keywords: IT/IS, SMEs, IT Governance, IS Failures, IS Success, IT Outsourcing, Agency Theory, Case Study, Positivism.*

# 1 INTRODUCTION

Our point of departure is the wide spread belief that IT (information technology) has the potential of delivering value to organisations (Porter & Millar, 1985; Wiseman & MacMillan, 1984; Parker et al., 1997). The value creating power of IT was illustrated in some famous cases like the American Airlines Sabre Reservation System, the American Hospital Supply ASAP System and in some newer cases within the e-business sphere like Amazon.com and eBay (Krishnamurthy, 2003). According to a prevalent paradigm one can accomplish value creation through IT by lowering management costs, creating new businesses, exploring new markets and providing opportunities to redesign existing business processes.

From this transaction cost theory and organisational control theory (Jensen & Meckling, 1976; Eisenhardt 1985) one would expect that the positive effect of IT on the value creation mechanism of organisations is reflected in the national growth statistics. This is somewhat disappointing. This phenomenon is known as the productivity paradox and was first discovered by Nobel Prize winner Robert Solow<sup>1</sup> and was later investigated by Brynjolfsson (Brynjolfsson, 1993). Research on the productivity paradox shows that there is a measurement problem in determining IT value (Brynjolfsson & Hitt, 2000).

The value creating power of IT was researched by strong defenders (McFarlan, 1984; Porter & Millar, 1985) and more critical non-believers (Strassmann 1997; Carr, 2003). One sees a paradigm shift from a naïve functionalism to a more critical pragmatism. IT value is now perceived more as fulfilment of business objectives such as user satisfaction, information quality, flexibility, value to the stakeholders, improved client services, system responsiveness and Business Process Management embedded in an international context and related to effects of contextual factors and management on firm performance (Dehning, 2002). The broadly adopted de facto standards COBIT and ITIL for practitioners consider effective IT management critically important to the survival and success of an organisation (IT Governance Institute, 2005; ITIL 2004). Scholars and practitioners were already focusing on the profound impact of IT on organisations and thus indicating on the difficulties that IT governance implies. Pioneering work was done by Nolan who developed a growth staged model to assess the IT maturity stages of organisations (Nolan, 1974). Nolan's model turns out to be very powerful and was recently successfully used as a framework for assessing organisations struggling with implementing an e-business strategy (Chaffey, 2004).

Today research on the impact of IT on organisation and the role of IT governance still is of major interest. IT Governance is placing IT on the agenda of boards and executives and specifying the decision rights and accountability framework to encourage desirable behaviour in the use of IT. Despite numerous successes illustrating the advantages of bringing IT/IS into organizations it is broadly accepted that the process of designing, developing, implementing and using IS is not straightforward. A lot of reports show that IS projects frequently fail (Standish, 2001 & 2004). The research on IS failures is elaborate since it has been conducted for more than three decades (Brooks, 1975; Lyytinen & Hirschheim, 1987; Ewushi-Mensah & Przasnyski, 1991; Sauer, 1993; Keil, 1995; Schmidt et al., 2001; Iacovou, 2005).

The relation between IT and small firms was never the focus of a lot of research. Only recently interest began to rise due to National and European governmental impulses. Two extra dimensions of failed IS projects are added in my research: 1) the size of the firm and 2) outsourcing of IS projects. For many SMEs (Small and Medium-sized Enterprises) outsourcing of their IS projects often is a necessity.

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<sup>1</sup> "You can see the computer age everywhere but in the productivity statistics." Robert Solow (1987)

However most outsourced IS projects are conducted in an environment reigned by information asymmetry. This is the situation of a principal (SME) and an agent (ISV – Independent Software Vendor). The agents often have private information about the quality of their systems which is not verifiable to the principal. According to the agency theory agents can therefore act in their own interests rather than in that of the principal (Eisenhardt, 1989). The agency theory is often used for explaining IT phenomena in organisations (Snir & Hitt, 2004). A lot of the research has been conducted in corporate enterprises with a formal IT organisation irrespective of their size. But this is not a common situation for SMEs. We believe the focus on SMEs to be very interesting and socially, economically and politically very important. SMEs represent 99% of all enterprises in the EU and provide around 65 million jobs. (European Website, 2005). SMEs are above all the seeds of tomorrow's large enterprises. The focus of our research will be the relation between IT and SMEs in an outsourced environment.

## **2 IT AND SME'S**

Research and literature have highlighted the definitional problems of SMEs. Companies differ in size, location, business, financial performance, maturity and management style. Europe defines SMEs as independent businesses that employ less than 250 people and with either a turnover of less than 50 million € or a balance sheet total of less than 43 million €. SMEs can be split up in micro, small and medium-sized enterprises (European Commission, 2003). Even with this definition SMEs are diverse. Some are dynamic and flexible with a great power to innovate and a vast range of diversity. Some are based on family involvement and embedded in local business environments. Some others are start-ups: fragile organisations striving for survival. SMEs can be split up in micro, small and medium-sized enterprises. Our research will focus on genuine SMEs or in the European definition: medium-sized and small enterprises.

The main goal set by the Lisbon Summit in March 2000 was to make Europe the world's most dynamic knowledge-based economy by 2010. This objective must be accomplished by corporate organisations but also by SMEs. The results of "The GO Digital Initiative", an awareness campaign for SMEs running from 2001 up to 2003, were therefore rather disappointing (European Commission, 2004).

In the years of the dotcom hype many believed that IT would enable SMEs to compete with large companies. However a lack of readiness for networking with other enterprises and reluctance to use advanced IT proved otherwise. SMEs see little incentive to change business models when returns are unclear (OECD, 2004). Research also showed that SMEs do not excel in knowledge retention and obtaining a sustainable competitive advantage. There is a slower adoption of IT in SMEs than in large enterprises. The methodologies that lead to successful IS implementations in large organisations can therefore not be extrapolated to SMEs, since we are dealing with a completely different economical, cultural and managerial environment. Existing mechanisms of IT governance do not work as such in SMEs where the decision making is mostly centered on one person (Southern & Tilley, 2000). Despite the efforts to develop specific derivative methods of governing IT in SMEs, like the Cobit QuickStart method for practitioners, the implementation is rather disappointing. (IT Governance Institute, 2003). If we assume that IT will be one of the major drivers for economic wealth in the 21st century, we must have enterprises that can rely on their IT. Therefore one could expect that IT should get the same level of commitment as the financial dimension gets in enterprises. The paradigm for the financial governance in organisation should therefore also apply for IT: maximise the value creation and reduce the risks.

## 3 METHODOLOGY

### 3.1 Research strategy

We have chosen for a qualitative and positivistic IS case study research strategy based on multiple cases. The choice for qualitative research is based on the accessibility of well documented secondary data in litigation files of failed IS projects. Eight cases of IS project failures were selected. All projects were subject to litigation. To avoid the difficult problem of defining a failed project, we used the concept of a termination error (Sauer, 1993). The positivistic stance of the research is our personal conviction that there is an objective reality of failed IS projects in SMEs. Those phenomena are embedded in an organizational context which is not separable from the unit of analysis. Also there are definitely more variables to be studied than there is available data. This is a situation where the case study is an ideal research strategy (Yin, 2004; Lee, 1989). According to Yin a case study research is useful when a phenomenon cannot be studied outside the context in which it occurs or where the boundaries between phenomenon and context are not clearly evident (Yin, 2003). Sauer shares the opinion that research to IS failures is best done by case study (Sauer, 1993). The development of the research design and methodology is inspired by the work of researchers experienced in case study research (Eisenhardt, 1989, Lee, 1989; Dubé & Paré, 2003).

### 3.2 Research Design

Considering the current state of the research we have formulated two general research objectives: 1) to extend our knowledge of IS failures in an outsourced SME environment and 2) to clarify the link between the insights of failed IS projects and the principles of IT governance. These general objectives have been broken down into the following research questions:

- Why do IS projects fail in SMEs?
- How do IS projects fail in SMEs?
- How do SMEs manage their IS projects?
- Why is there not enough IT Governance in SMEs?

Process explanations become more meaningful when situated within a broader theoretical level, although it is almost impossible to start with a clean theoretical slate. We try not to be constrained by prior theory but we tend to develop propositions for our work out of the positivistic principal agent theory (Eisenhardt, 1985), the growth model theory (Nolan, 1974), the 'Lemon Market' theory (Akerlof, 1970), the IS Success Model (DeLone & McClean, 2003) and the expectation failure theory (Lyytinen & Hirschheim, 1987). All theories were studied and can be considered as falsifiable with the potential of deducing logical and consistent propositions (Lee, 1989). We will also craft some rival propositions out of those theories. The theories all seem to have at least explaining power. Some of them (principal agent theory) even have predicting power (Gregor, 2006). The unit of analysis in every case is the IS project that was subject to litigation. This narrowed down our focus to a bounded system (Paré, 2004). Since this is a multiple-case study design we will follow replication logic to guarantee external validity. Generalisability is of major concern in every research but cannot be of a statistical kind in this work. The kind of generalisation that will be established here is an analytical generalisation (Yin, 2004) or generalising from case study findings to theory (Lee & Baskerville, 2003). The theoretical generalisation from the empirical description in our case study has no value beyond the given cases. However the generalisation from ideographic details to theory is important for offering clarification of theoretical concepts. The cases are therefore carefully chosen to accomplish literal replication logic (6 cases) as well as theoretical replication logic (2 cases). In each case there is at least some evidence of incomplete and asymmetric information, hidden actions and hidden intentions on behalf of the agent.

### **3.3 Research Methodology**

A case study protocol is developed to minimize the errors and biases in the study. The protocol contains all procedures, observation protocols and general rules that are followed during the research. Since we are conducting a multiple-case study the procedures and general rules are generally applicable over all cases. The case study protocol offers a guideline for investigators and reviewers who will help in the evaluation of the cases.

Three sources of evidence will be used to ensure construct validity: 1) documents, 2) focus & open ended interviews and 3) direct and participant observations. The documents are delivered by three sources: plaintiff, defendant and expert witness. The plaintiff and defendant documents are often the same but brought into litigation for opposed opinions. All expert witness reports were exposed to a cross examination of all parties involved and were corrected if material errors did occur. This results in an extra triangulation of the available data. The interviews were recorded on audiotapes and written down in reports and also sent to all parties for cross examination. All interviews took place in the present of all parties and the expert witness. The case study sites were visited at least four times for the purpose of doing interviews and direct observations. Additional data was collected during those site visits. In two cases evidence is obtained as participant observer. The data coming from all sources is coded by means of a coding scheme, which is also a part of the case study protocol. The coding scheme separates the basic data from the metadata (the documents, reports, sheets ...). The coding scheme is designed to avoid data contamination. All data is stored in a computerised case study database and links are made between basic data and metadata. The data is retrievable by computer but is also available in original and raw format for reviewers. The data analysis is based on alternate template strategy: a pattern-matching technique (Langley, 1999).

## **4 CONTRIBUTION**

A lot of money and effort from local, national and European governments goes to the take-up of IT and e-business in SMEs to achieve economic growth. These efforts need at least to be tempered with a sharp focus on how small businesses function. There is a lack of research on the impact of IT on SMEs or the behaviour of SMEs with respect to IT. Too much emphasis was given to the deterministic view on IT with an optimistic perspective: IT must be a 'good thing' for SMEs (Southern & Tilley, 2000). Information system research still lacks a theory that could explain social and organisational effects of IT and their impact on business performance.

It is however not easy to isolate SME characteristics and study their individual impact. Qualitative research built on case studies has been shown to be very helpful in bringing scientific evidence. The managerial work in an SME is tremendous. However, the time for the entrepreneur/CEO is limited and the priorities must be selected carefully. According to the feedback of the GO digital campaign of Europe, SMEs do not consider IT as a top priority.

Although some of the technological barriers for an IT adoption seem to vanish since more and more SMEs have broadband connections to Internet, there are still a lot of hurdles to be taken. Gaining knowledge on the value proposition of IT/IS in SMEs and the relation between IT and SMEs are certainly two of them. There is also a strong link between strategy, information and innovation (Sauer, 1993). Innovation is of strategic importance in organisations and is based on a reduction of uncertainties. The process of uncertainty reduction depends heavily on the IT capabilities of the organisation. An effective and efficient flow of information throughout the functional groups (purchase, marketing, manufacturing ...) and the cross-functional integration in organisations can be of great help to reduce the boundary-spanner stress when SMEs are growing and moving towards networked organisations. Comprehensive methods to implement sustainable IT governance techniques are therefore helpful but should be rooted in profound scientific research. The results of this work should help practitioners to improve their methodologies by applying more formal and effective knowledge. This research will also improve managerial understanding of the impact of IT on SMEs.

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### Appendix: Status report

The research is based on a timeframe of three years. The research started in 2006 with the development of the case study database and an extensive literature study. The literature study will be continued during the complete research program.

Expected outcome for the year 2007

- A working paper on the state of scientific research concerning SMEs and IT
- A working paper on the progress and results of the exploratory phase of this study
- Several publishable detailed write ups of case descriptions
- Draft concepts of used theories

Expected outcome for the year 2008

- A working paper on used theories
- A working paper on the methodology of within-case analysis for SMEs cases
- A working paper based on instrumental cases to test the developed theories
- Final presentation of results (PhD dissertation)

